March 2002

Pakistan

Pakistan is a significant energy consumer. Opportunities exist for foreign direct investment in Pakistan's energy sector, though some foreign investors have encountered problems in recent years.

Note: Information contained in this report is the best available as of March 2002 and can change.

GENERAL BACKGROUND

Recent economic developments in Pakistan have been dominated by the country's decision to undertake a series of nuclear weapons tests in late May 1998, the military coup which brought General Pervaiz Musharraf to power in October 1999, and the military campaign in neighboring Afghanistan beginning in October 2001. The United States permanently lifted sanctions against both India and Pakistan in September 2001, which were imposed in 1998 in the wake of the nuclear tests, and has resumed a substantial aid program. The Paris Club agreed in December 2001 to a generous rescheduling of Pakistan's external debt, and international financial institutions such as the World Bank and International Monetary Fund (IMF) also have agreed to provide substantial amounts of additional credit, totalling nearly $10 billion over the next three years.

Pakistan's critical textile industry has been adversely affected since September 2001, and agricultural production was already suffering from a severe drought in 2001, but an inflow of aid has improved Pakistan's short-term financial situation considerably. The United States also has agreed to reduce or suspend some tariffs on imports of Pakistani textile products, which should help boost Pakistani export

earnings.

Pakistan's real gross domestic product (GDP) growth rate was 3.5% in 2001, and is forecast at 5.4% for 2002. Pakistan's external debt is equal to around 60% of its annual GDP, and its debt payments due each year exceed its receipts from exports. Population growth is currently running at 2.2% per year. The government also suffers from a relatively ineffective system for tax collection, with only 1% of the population paying income taxes, though the Musharraf government has begun a program to increase tax collection rates, which is showing some signs of success.

While formal legal protections for foreign investment in Pakistan generally are good, inadequate infrastructure, a poorly educated workforce, sectarian and ethnic violence, and a slow-moving judicial system have proven to be obstacles to attracting foreign investment. While some of the well-publicized disputes between Pakistani state entities and the country's Independent Power Producers (IPP's) have been resolved, the dispute has been a major blow to foreign investor confidence in Pakistan. Foreign Direct Investment (FDI) in Pakistan in recent years has been only a small fraction of the comparable figures for the mid-1990s.

OIL

Pakistan produced 57,000 barrels per day (bbl/d) of oil in 2001 (of which 3,000 bbl/d was crude oil and the rest refinery gain and other liquids), and consumed 359,000 bbl/d of petroleum products. Net oil imports were 302,000 bbl/d. While there is no prospect for Pakistan to reach self sufficiency in oil, the government has encouraged private (including foreign) firms to develop domestic production capacity. Pakistani domestic oil production centers on the Potwar Plateau in Punjab and lower Sindh province.

Most of the foreign firms active in Pakistan in the oil exploration and production sector are small independent firms. The two most significant foreign oil firms in Pakistan are BP and ENI (which acquired British independent Lasmo in early 2001). State-owned Oil and Gas Development Corporation (OGDC) also is a major player. Malaysia's Petronas has acquired a stake in an exploration block in Sindh province, in cooperation with ENI. In November 2000, the Pakistani government awarded two exploration blocks: the onshore Mehran Block 2467-4, to a team including Union Texas Pakistan, a subsidiary of BP, and Occidental Petroleum; and an offshore block to Ocean Energy. Ocean Energy plans to begin drilling in the Makran area in late 2002. American independent Orient Petroleum, which also hold concessions in Pakistan, is investing approximately $70 million in seismic surveys and exploratory drilling over an initial period of three years.

The Pakistani government had planned to move forward with the sale of a significant number of the production assets of OGDC in late 2001, but postponed the sale due to investor concerns about the country's stability. Current plans call for the sale of nine currently producing oil and gas fields, with bids to be solicited in April 2002.

Refining/Downstream

Pakistan's net oil imports are projected to rise substantially in coming years as demand growth outpaces increases in production. Demand for refined petroleum products also greatly exceeds domestic oil refining capacity, so nearly half of Pakistani imports are refined products. Pakistan's Pak-Arab Refinery (PARCO) became operational in late 2000, adding 100,000 bbl/d to the country's refining capacity, and alleviating refined product import dependence.

A small, 30,000 bbl/d refinery is being set up by private Bosicor Pakistan near Karachi and is slated to begin commercial operation in the first half of 2002. A refurbished unit previously owned by Tesoro Petroleum in the United States is being used in the construction of the refinery.

Another major planned project is the "Iran-Pak" refinery, which would have a capacity of 130,000 bbl/d. The refinery would be located near the border with Iran in Baluchistan province and would be a 50:50 partnership between Pakistan's Petroleum Refining and Petrochemical Corporation (PERAC) and the

National Iranian Oil Company (NIOC). Oil processed at the Iran-Pak refinery would come almost exclusively by sea from Iran, and would be unloaded at a terminal to be built for the refinery. The project has failed to reach financial closure, however, and seems unlikely to be built as NIOC's demand for a guaranteed rate of return is at odds with Pakistan's new policy against such guarantees.

In the fuel and lubricants distribution sector, the government of Pakistan plans to privatize the Pakistan State Oil (PSO) company, which holds three-quarters of the market share for petroleum products distribution and has more than 3,000 outlets. Deregulation of prices for petroleum products is being pursued in parallel with the privatization of PSO. Final approval for the privatization was granted in January 2001, and the Pakistani government has begun to solicit potential buyers.

As part of the privatization process, the government of Pakistan is setting up the Gas Regulatory Authority (GRA) and the Petroleum Regulatory Board (PRB), which will separate out the government functions from the state-owned companies to be privatized. Pakistan's government hopes to reap significant revenues from these privatizations over the next several years.

NATURAL GAS

Pakistan has 25.1 trillion cubic feet (Tcf) of proven gas reserves, and currently produces around 0.8 Tcf of natural gas per year, all of which is consumed domestically. Natural gas producers include Pakistani state-owned companies Pakistan Petroleum Ltd. (PPL) and Oil and Gas Development Corporation (OGDC), as well as BP, ENI, OMV, and BHP. The largest currently productive fields are Sui, by far the largest at 650 million cubic feet per day (Mmcfd), Adhi and Kandkhot (120 Mmcfd), Mari, and Kandanwari.

Pakistan's demand for natural gas is expected to rise substantially in the next few years, with an increase of roughly 50% by 2006, according to Pakistan's oil and gas ministry. Pakistan also plans to make gas the "fuel of choice" for future electric power generation projects. This will necessitate a sharp rise in production of natural gas, and also has generated interest in Pakistan in pipelines to facilitate imports from neighboring countries.

Much of Pakistan's increased natural gas demand will be satisfied by increased domestic production. Austrian company OMV's 1998 discovery at Sawan is expected to produce 340 Mmcfd by 2003. Lasmo (now ENI) reported a new find in March 1999, in western Sindh province, which is expected to produce 20 Mmcfd. Hardy Oil (UK) also reported a new discovery in 1999, in the Middle Indus region of Sindh, which tested at an initial 58 Mmcfd. Petronas reported a new discovery in September 2001 near Sukkur. Recent offshore exploration concessions have also been granted to ENI, Shell, OMV, and others.

Development of new natural gas fields is proceeding, with Pakistan's government expecting recently discovered fields to add about 1 billion cubic feet per day (Bcf/d) to Pakistan's natural gas production. The Zamzama field in Sindh province came onstream in early 2001, and produces 60 Mmcfd. Pakistan has signed a contract with ENI for the development of the Bhit gas field, which is expected to come onstream in 2002 and reach peak production of 235 Mmcfd by 2003.

Several import schemes also have been under discussion in recent years, though recent finds now under development have made it unlikely that Pakistan will need to import natural gas within the next few years. In mid-2000, Pakistan's government stated that it would permit a natural gas pipeline linking Iran's massive reserves to rival India across Pakistani territory. Pakistan would earn transit fees for Iranian gas supplied to India and also would be able to purchase some gas from the pipeline when and if its own demand was sufficient. While Iran and Pakistan have shown great interest in the project, India has been reluctant to move forward as long as political and military tensions with Pakistan over Kashmir persist. The recent escalation of tensions between the two countries has made any movement on the project even more unlikely, though a feasibility study is still underway.

Another natural gas import possibility is an eventual link with the Dolphin Project, a scheme to supply gas from Qatar's North Dome gasfield to the United Arab Emirates and Oman, via a subsea pipeline from

Oman. Even though Pakistan has signed a preliminary agreement to eventually purchase natural gas from Qatar, it seems increasingly unlikely that Pakistan will be included in the project in the near-term, due to it financial weakness and uncertainty about whether there will be sufficient domestic gas demand growth.

A third possible natural gas pipeline would link gas-rich Turkmenistan with Dalautabad in central Pakistan via Afghanistan. Unocal had been the main foreign backer of the plan until August 1998, when it withdrew from the project after the U.S. strikes against terrorist training camps associated with Osama bin Laden in Afghanistan. Subsequently, the governments of Pakistan and Turkmenistan held talks with the Afghan Taliban authorities about continuing the project without Unocal. The new Afghan transitional government of Hamid Karzai has endorsed the pipeline idea, but it seems unlikely to be implemented due to lack of interest by potential investors.

Some independent observers of the Pakistani natural gas market believe that increases in domestic production, coupled with a slower growth in demand than projected by the Pakistani government, will render the gas pipeline projects economically inviable. In addition, Pakistan's weak financial position makes it difficult to secure financing for such ambitious projects. A pipeline from Iran to India would make sense in financial terms, as its primary justification would be sales to India, with Pakistan as only a secondary customer, but the energy security issues it raises for India make it unlikely to proceed.

ELECTRIC POWER

Pakistan has 17 gigawatts (GW) of electric generating capacity. Thermal plants make up about 71% of this capacity, with hydroelectricity making up 28% and nuclear plants 1%. Pakistan's total power generating capacity has increased rapidly in recent years, due largely to foreign investment, leading to a partial alleviation of the power shortages Pakistan had faced earlier. Rotating blackouts ("load shedding") are, however, necessary at times in some areas. Transmission losses are about 30%, due to poor quality infrastructure and a significant amount of power theft. Seasonal reductions affect the availability of hydropower. With much of the Pakistan's rural areas yet to receive electric power, and less than half of the population connected to the national grid, significant power demand growth is expected in the long term, though in the short term, Pakistan has some excess generation capacity.

The electric power sector in Pakistan is still primarily state-owned, but a privatization program is underway. The main state-owned utilities are the Water and Power Development Authority (WAPDA), and the Karachi Electricity Supply Corporation (KESC), which serves only Karachi and surrounding areas. WAPDA, which is made up of eight regional electricity boards, is to be split up for privatization. One regional entity, the Faisalabad Area Electricity Board, has begun the privatization process, which is scheduled to conclude in late 2002. Pakistan set up a National Electric Power Regulatory Authority (NEPRA) in 1997.

Growth in power generation in recent years has come primarily from new independent power producers (IPP's), some of which have been funded by foreign investors, and a few WAPDA hydroelectric dam projects. The two largest private power plants in Pakistan are the Hub power company (HUBCO) and the Kot Addu power company. HUBCO is owned by a consortium of National Power (UK), Xenal (Saudi Arabia), and Mitsui Corporation, and has a 1,300-MW capacity. Kot Addu, with a 1,500-MW capacity, was privatized in 1996 (from WAPDA), and is owned by National Power. Both of these plants, as well as a few other small private operators, sell power to the national grid currently run by WAPDA.

Two power projects involving U.S.-based companies (Babcock and Wilcox, and General Electric) received $293 million from the U.S. Export-Import Bank in early 1998. These projects involve equipment and services for Uch Power Ltd., and the Saba power plant. Uch Power became operational in December 2000, with a capacity of 550 MW. Private sector projects will rely primarily on increased use of natural gas. New WAPDA projects are confined to hydropower, including projects such as the 1,425-MW Ghazi-Barotha plant which takes advantage of the enormous untapped potential of the Indus River. The dam is under construction, and a payment dispute with construction firms involved in the project was resolved in February 2002. Construction had been halted in September 2001 due to the payment dispute and withdrawal of expatriate staff due to security concerns.

IPP's have been involved in disputes and litigation with the government over the rates set in their Power Purchase Agreements (PPA's) with the national WAPDA grid. The government under Nawaz Sharif had charged that the IPP's had engaged in price fixing and had paid bribes to officials of the previous Benazir Bhutto government. The Sharif government's main demand was for a reduction in rates to 4.5 cents per kilowatt hour (kwh), from the 6.6 cents per kwh which most of the IPPs had in their original contracts. Both of the largest IPP's, HUBCO and Kot Addu, were targeted, as well as the Malaysian-owned Dharki power plant. In response to the Pakistani government's demands for a rate reduction, the IPP's demanded that prices for fuels be lowered, in particular oil, which is supplied by a state controlled monopoly. HUBCO's dispute with WAPDA was settled by an agreement on a new price of 5.6 cents per kwh in December 2000, and Kot Addu agreed to a rate reduction in October 2000. HUBCO has recovered reasonably well from the dispute, and reported a profit for 2001. Libery Power, a new 235-MW IPP backed by Tenaga Nasional of Malaysia, began operation in August 2001, after resolving its tariff dispute with WAPDA.

In the short term, Pakistan faces a power oversupply problem. During the period from 1994, when the previous government under Benazir Bhutto announced the policy of promoting foreign investment in the power sector, to the fall of 1995, 33 projects totaling an additional 7,740 MW of capacity were approved. Demand growth has not yet matched the increases in capacity from this new construction.

Power theft is a pressing issue in Pakistan. While it is impossible to precisely measure theft (as opposed to line loss), it is obvious that it constitutes a sizable proportion of Pakistan's overall 30% loss rate. The situation was so severe by early 1999 that the Pakistani government assigned army units to look for illegal connections to transmission lines and rigged meters. Power theft is just one part of the financial problems for WAPDA, however. WAPDA is at the center of a public sector "circular debt" problem, in which state firms and government ministries have failed to pay power bills, and WAPDA has failed to meet obligations to them and to private sector creditors.

COAL

Coal currently plays a relatively minor role in Pakistan's energy mix, but the discovery of large volumes of low-ash, low-sulfur lignite in the Tharparkar (Thar) Desert in Sindh province could increase its importance. Thar reserves are being developed under the jurisdiction of the provincial Sindh Coal Authority and have enormous economic potential. The Authority's policy is to develop the reserves primarily to fuel large electric power plants to be built in tandem with the coal mines. A feasibility study recently was carried out for the construction of a coal-fired power plant near the Thar coal mines, and President Musharraf has stated recently that coal should make up more than the current 1% of electric power generation in Pakistan.

ENVIRONMENT

Pakistan's attempt to raise the living standards of its citizens has meant that economic development has largely taken precedence over environmental issues. Unchecked use of hazardous chemicals, vehicle emissions, and industrial activity has contributed to a number of environmental and health hazards, chief among them being water pollution. Much of the country suffers from a lack of potable water due to industrial waste and agricultural runoff that contaminates drinking water supplies. Poverty and high population growth have aggravated, and to a certain extent, caused, these environmental problems.

Although Pakistan is renowned for its mountain ranges and areas of untouched wilderness, the country passed legislation to protect its environment only in the past 10 years. Environmental groups have questioned the country's commitment to environmental protection, pointing to the decision in August 1999 to allow oil and gas exploration in Kirthar National Park, the country's oldest national wildlife park, by a multi-national company.

In the cities, widespread use of low-quality fuel, combined with a dramatic expansion in the number of vehicles on Pakistani roads, has led to significant air pollution problems. Although Pakistan's energy consumption is still low by world standards, lead and carbon emissions are major air pollutants in urban centers such as Karachi, Lahore, and Islamabad.

Theft or diversion of electricity in transmission, as well as a lack of energy efficiency standards, have contributed to Pakistan's high energy and carbon intensities. To increase energy efficiency, the country is stepping up its use of renewable energy sources to bring electricity to rural areas. As urbanization continues and the population grows at a rapid rate, in the 21st century Pakistan will need to confront its environmental problems in order to safeguard the health of it citizens.

Sources for this report include: CIA World Factbook 2001; Dow Jones News wire service; DRI/WEFA Asia Economic Outlook; Economist Intelligence Unit ViewsWire; Oil and Gas Journal; Oil Daily; Petroleum Economist; International Market Insight Reports; U.S. Energy Information Administration; World Gas Intelligence.

COUNTRY OVERVIEW

President: General Pervaiz Musharraf (President since July 2001; Chief Executive from October 1999.)
Independence: August 14, 1947 (from UK)
Population (7/01E): 144.6 million
Location/Size: Southern Asia/310,500 square miles (about twice the size of California)
Major Cities: Islamabad (capital), Karachi, Lahore, Faisalabad
Languages: Urdu (national/official), English (official), Punjabi, Sindhi, Pashtu, Baloch
Ethnic Groups: Punjabi, Sindhi, Pashtun (Pathan), Baloch, Muhajir (immigrants from India and their descendants)
Religions: Muslim, 97% (Sunni 77%, Shia 20%); Christian, Hindu, and other, 3%
Defense (8/98): Army (520,000); Air Force (45,000); Navy (22,000); Paramilitary Forces (247,000)

ECONOMIC OVERVIEW

Currency: Pakistani Rupee
Average Exchange Rate (2/27/02): U.S.$1 = 62.9 rupees
Gross Domestic Product (GDP, market exchange rates, 2001E): $56.8 billion
Real GDP Growth Rate (2001E): 3.5% **(2002F)**: 5.4%
Inflation Rate (2001E): 4.1% **(2002F):** 5.2%
Current Account Balance (2001E): -$1.9 billion
Merchandise Trade Balance (2001E): -$1.6 billion
Total External Debt (2001E): $34.1 billion
Major Trading Partners: United States, Japan, Germany, United Kingdom, and Saudi Arabia
Major Export Products: Raw cotton and textiles; rice; leather manufactures
Major Import Products: Petroleum; machinery and transport equipment; food

ENERGY OVERVIEW

Proven Oil Reserves (1/1/02E): 298 million barrels
Oil Production (2001E): 57,000 barrels per day (bbl/d), of which 53,000 bbl/d was crude oil
Oil Consumption (2001E): 359,000 bbl/d
Net Oil Imports (1999E): 302,000 bbl/d
Crude Oil Refining Capacity (1/1/02E): 238,850 bbl/d
Natural Gas Reserves (1/1/02E): 25.1 trillion cubic feet (Tcf)
Natural Gas Production (1999E): 0.8 Tcf
Natural Gas Consumption (1999E): 0.8 Tcf
Coal Production (1999E): 3.8 million short tons (Mmst)
Coal Consumption (1999E): 4.9 Mmst
Net Coal Imports (1999E): 1.1 Mmst
Recoverable Coal Reserves (12/31/96E): 3.2 billion short tons
Electric Generation Capacity (1/1/99E): 17.0 gigawatts (71% thermal, 28% hydro, 1% nuclear)
Electricity Generation (1999E): 62 billion kilowatthours

ENVIRONMENTAL OVERVIEW

Total Energy Consumption (1999E): 1.8 quadrillion Btu* (0.47% of world total energy consumption)
Energy-Related Carbon Emissions (1999E): 27.9 million metric tons of carbon (0.45% of world total carbon emissions)
Per Capita Energy Consumption (1999E): 12.5 million Btu (vs. U.S. value of 355.8 million Btu)
Per Capita Carbon Emissions (1999E): 0.2 metric tons of carbon (vs. U.S. value of 5.5 metric tons of carbon)
Energy Intensity (1999E): 31,193 Btu/$1990 (vs U.S. value of 12,638 Btu/$1990)**
Carbon Intensity (1999E): 0.48 metric tons of carbon/thousand $1990 (vs U.S. value of 0.19 metric tons/thousand $1990)**
Sectoral Share of Energy Consumption (1998E): Residential (48.8%), Industrial (33.4%), Transportation (13.3%), Commercial (4.5%)
Sectoral Share of Carbon Emissions (1998E): Industrial (44.9%), Transportation (27.2%), Residential (22.2%), Commercial (5.7%)
Fuel Share of Energy Consumption (1999E): Oil (41.9%), Natural Gas (40.0%), Coal (5.0%)
Fuel Share of Carbon Emissions (1999E): Oil (54.6%), Natural Gas (37.4%), Coal (8.0%)
Renewable Energy Consumption (1998E): 1,145 trillion Btu* (1% increase from 1997)
Number of People per Motor Vehicle (1998E): 125 (vs. U.S. value of 1.3)
Status in Climate Change Negotiations: Non-Annex I country under the United Nations Framework Convention on Climate Change (ratified June 1st, 1994). Not a signatory to the Kyoto Protocol.
Major Environmental Issues: Water pollution from raw sewage, industrial wastes, and agricultural runoff; limited natural fresh water resources; a majority of the population does not have access to potable water; deforestation; soil erosion and desertification.
Major International Environmental Agreements: A party to Conventions on Biodiversity, Climate Change, Desertification, Endangered Species, Environmental Modification, Hazardous Wastes, Law of the Sea, Nuclear Test Ban, Ozone Layer Protection, Ship Pollution and Wetlands . Has signed, but not ratified, Marine Life Conservation.

* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar, wind, wood and waste electric power. The renewable energy consumption statistic is based on International Energy Agency (IEA) data and includes hydropower, solar, wind, tide, geothermal, solid biomass and animal products, biomass gas and liquids, industrial and municipal wastes. Sectoral shares of energy consumption and carbon emissions are also based on IEA data.
**GDP based on EIA International Energy Annual 1999

ENERGY INDUSTRY

Organization: Oil and Gas Development Corporation (OGDC), a state company, handles oil and gas exploration and development; Water and Power Development Authority (WAPDA) supplies electricity to most of the country; Karachi Electric Supply Corporation Limited (KESC) serves the greater Karachi metropolitan area; Pakistan Atomic Energy Commission (PAEC) operates one nuclear power plant
Major Foreign Energy Company Involvement: AES, Atlantic Richfield, British National Power, Coastal Power, Gaz de France, Total, General Electric, Lasmo Oil (U.K.), Marubeni (Japan), ExxonMobil, Monument Oil & Gas, Premier Oil, Royal Dutch Shell, Xenal (Saudi Arabia)
Major Ports: Gwadar, Karachi, Muhammed bin Qasim, Ormaro
Major Gas Fields: Bhit, Dhodak, Kadanwari, Mari, Prikoh, Qadipur, Sawan, Sui
Major Oil Fields: Dhurnal, Fimkasser, Liari, Mazari, Thora
Major Pipelines: Sui Northern Gas Pipeline; Sui Southern Gas Pipeline; Pak-Arab Refinery Company (PARCO) petroleum product pipeline
Major Refineries (Capacity): Pak-Arab Refinery near Multan (100,000 bbl/d); Attock Refinery in Rawalpindi (35,000 bbl/d), National Refinery in Korangi (62,050 bbl/d), Pakistan Refinery Ltd. in Karachi (46,300 bbl/d)

Links

For more information from EIA on Pakistan, please see:

EIA - Country Information on Pakistan

Links to other U.S. government sites:
CIA World Factbook - Pakistan
U.S. Department of Energy - Office of Fossil Energy - Pakistan
U.S. State Department Consular Information Sheet - Pakistan
U.S. State Department Country Commercial Guide - Pakistan
U.S. State Department Background Notes on Pakistan
U.S. Embassy, Islamabad, Pakistan
U.S. Embassy, Islamabad, Pakistan, Report on Investment Climate in Pakistan
U.S. Library of Congress Country Study on Pakistan

The following links are provided solely as a service to our customers, and therefore should not be construed as advocating or reflecting any position of the Energy Information Administration (EIA) or the United States Government. In addition, EIA does not guarantee the content or accuracy of any information presented in linked sites.

Embassy of the Islamic Republic of Pakistan in the U.S.
Official Pakistan Government site
Privatization Commission of Pakistan
Water and Power Development Authority (WAPDA)
Pak-Arab Refinery, Ltd.
Business Recorder
Pakistan Economist
Dawn (Daily Newspaper)

If you liked this Country Analysis Brief or any of our many other Country Analysis Briefs, you can be automatically notified via e-mail of updates. Simply click here, select "international" and the specific list(s) you would like to join, and follow the instructions. You will then be notified within an hour of any updates to our Country Analysis Briefs.

Return to Country Analysis Briefs home page

File last modified: March 1, 2002

Contact:

Lowell Feld
lfeld@eia.doe.gov
Phone: (202)586-9502
Fax: (202)586-9753

URL: http://www.eia.doe.gov/emeu/cabs/pakistan.html

If you are having technical problems with this site, please contact the EIA Webmaster at wmaster@eia.doe.gov